SEQUENCE LISTING

<110> Barbas, Carlos F.
Burton, Dennis R.
Lerner, Richard A.

<120> Methods for producing antibody libraries
using universal or randomized immunoglobulin light chains

<130> TSRI 409.1D2

<140> US 09/610,551
<141> 2000-07-05

<150> US 08/931,645
<151> 1997-09-16

<150> US 08/300,386
<151> 1994-09-02

<150> US 08/174,674
<151> 1993-12-28

<150> US 08/012,566
<151> 1993-02-02

<150> US 07/954,148
<151> 1992-09-30

<150> US 07/826,623
<151> 1992-01-27

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<223> k = G or T

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<221> modified_base
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<221> modified_base
<222> 24, 27, 30, 33, 36, 39, 42, 45, 48, 51
<223> k = G or T

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gggaccaagg tggag 75

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<223> n = G, A, T, or C

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<223> m = A or C

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<223> n = G, A, T, or C

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70, 72, 73
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<221> modified_base
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<223> k = G or T

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<223> n = G, A, T, or C

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<223> k = G or T

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<223> s = G or C

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<400> 31
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Ser Ser Thr Lys Ile Met Arg Leu Asp Thr
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Gly Met Phe Arg Arg Gly Phe Tyr Asp Arg
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Gln Gln Tyr Ser Arg His Arg Phe Thr

1 5

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Gln Gln Tyr Lys Tyr Gly Arg Gly Met Thr
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1 5

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Gln Gln Tyr Ala Arg Ala Thr Gly Leu Thr
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Gln Gln Tyr Ser Arg Phe Val Ser Arg Thr
1 5 10

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tgccgggcaa gtcagcgcat tagcagctat ttaaattggt atcagcagga accaggggaa 120
gcccctaagc tcctgatcta tgctgcatcc aggtttgcaa agtggggtcc catcaaggtt 180
cagtggcagt ggatctggga cagatttcac tctcaccatc agcagtctgc aacctgaaga 240
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Ser Cys Glu Ala Ser Gly Phe Thr Phe Gly Ser Tyr Ala Met Thr Trp
20 25 30
Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ser Ser Pro Ser
35 40 45
Ala Asn Gly Asp Phe Ala Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe
50 55 60
Thr Ile Ser Arg Asp Lys Ser Lys His Thr Leu Phe Leu Gln Met His
65 70 75 80
Ser Leu Arg Val Glu Asp Thr Ala Val Tyr Tyr Cys Ala Lys Ala Gly
85 90 95
Arg Ile Leu Gly Val Val Leu Trp Tyr Ser Leu Tyr Tyr Gly Phe Asp
100 105 110
Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120

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Leu Glu Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala Ser Val Lys
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Val Ser Cys Lys Ala Ser Gly Tyr Asn Phe Asn Ser His Asp Ile Asn
20 25 30
Trp Val Arg Gln Ala Thr Gly Gln Gly Leu Glu Trp Ile Gly Trp Ile
35 40 45
Thr Asn Arg Gly Thr Thr Ser Arg Tyr Ala Gln Lys Phe Gln Gly Arg
50 55 60
Val Thr Met Thr Arg Asp Ala Ser Ile Ser Thr Val Tyr Met Glu Leu
65 70 75 80
Ser Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg Gly
85 90 95
Ala Gly Ala Gly Gly Thr Trp Gly Met Asp Val Trp Gly Gln Gly Thr

100 105 110
Thr Val Ile Val Ser Ser
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Gln Val Lys Leu Leu Glu Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
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Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly His
20 25 30
Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile
35 40 45
Gly Trp Ile Ser Pro Asn Arg Gly Ala Thr Arg Phe Ala Gln Lys Phe
50 55 60
Gln Gly Arg Val Thr Met Thr Ser Asp Thr Ser Ile Asn Thr Val Tyr
65 70 75 80
Met Glu Leu Ser Gly Leu Arg Phe Asp Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Thr Thr Arg Thr Ala Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly
100 105 110
Thr Thr Val Thr Val Ser Ser
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Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Ala
35 40 45
Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
50 55 60
Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
65 70 75 80
Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Phe Thr Phe
85 90 95
Cys Pro Gly Thr Lys Val Asp Ile Lys Arg Thr
100 105

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<400> 67
Glu Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg
 1               5                  10                  15
Val Thr Ile Thr Cys Arg Ala Ser Gln Arg Ile Ser Ser Tyr Ile Asn
            20                  25                  30
Trp Tyr Gln Gln Glu Lys Pro Gly Ala Pro Lys Leu Leu Ile Tyr Ala
        35                  40                  45
Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
    50                  55                  60
Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
65                  70                  75                  80
Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Tyr Thr Phe
                85                  90                  95
Cys Gln Gly Thr Lys Leu Glu Ile Lys Arg Thr
            100                 105


<210> 68
<211> 109
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthesized

<400> 68
Glu Leu Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Glu Gly
 1               5                  10                  15
Asp Thr Val Thr Ile Thr Cys Arg Ala Ser Glu Asn Ile Ser Arg Tyr
            20                  25                  30
Ser Asn Trp Tyr Gln Gln Gln Pro Gly Lys Ala Pro Lys Leu Leu Ile
        35                  40                  45
Ser Ala Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr His Phe Thr Leu Thr Ile Asn Ser Leu Gln Pro
65                  70                  75                  80
Gly Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Thr Tyr Ser Ser Pro Phe
                85                  90                  95
Thr Phe Cys Gln Gly Thr Lys Leu Glu Ile Lys Arg Thr
            100                 105


<210> 69
<211> 109
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthesized

<400> 69
Glu Leu Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1               5                  10                  15

```
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Thr Ile Gly Thr Tyr
            20                  25                  30
Ile Asn Trp Tyr Gln Gln Lys Pro Gly Glu Ala Pro Lys Leu Leu Ile
        35                  40                  45
Tyr Thr Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Arg Gly
    50                  55                  60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65                  70                  75                  80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Trp
                85                  90                  95
Thr Phe Cys Gln Gly Thr Lys Val Glu Ile Lys Arg Thr
            100                 105
```

<210> 70
<211> 110
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthesized

<400> 70

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Glu Leu Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1               5                  10                  15
Asp Arg Val Thr Ile Ser Gly Cys Arg Ala Ser Gln Asn Ile Gly Lys
            20                  25                  30
Tyr Ile Asn Trp Tyr Arg Gln Lys Pro Gly Lys Ala Pro Glu Leu Leu
        35                  40                  45
Ile Tyr Gly Thr Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser
    50                  55                  60
Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln
65                  70                  75                  80
Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro
                85                  90                  95
Trp Thr Phe Cys Gln Gly Thr Lys Val Glu Ile Lys Arg Thr
            100                 105                 110
```

<210> 71
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthesized

<400> 71

```
Arg Ala Ser Ser Asn Ile Ser Ser Tyr Ile Asn
 1               5                  10
```

<210> 72
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthesized

<400> 72
Arg Ala Ser Glu Asn Ile Ser Ser Tyr Ile Asn
 1               5                  10

<210> 73
<211> 72
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthesized

<221> modified_base
<222> 1, 2, 4, 5, 7, 8, 10, 11, 13, 14, 16, 17, 19, 20, 22, 23,
25, 26, 28, 29, 31, 32, 34, 35, 37, 38, 40, 41, 43, 44,
46, 47, 49, 50, 52, 53, 55, 56, 58, 59, 61, 62, 64, 65,
67, 68, 70, 71
<223> N = G, A, T, or C

<221> modified_base
<222> 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45,
48, 51, 54, 57, 60, 63, 69, 72
<223> k = G or T

<221> misc_feature
<222> (1)...(72)
<223> This sequence may encompass 3 to about 24 repeats
      of the NNK nucleotide motif

<400> 73
nnknnknnkn nknnknnknn knnknnknnk nnknnknnkn nknnknnknn knnknnknnk 60
nnknnknnkn nk                                                     72

<210> 74
<211> 72
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthesized

<221> modified_base
<222> 1, 4, 7, 10, 13, 16, 19, 22, 25, 28, 31, 34, 37, 40, 43,
46, 49, 52, 55, 58, 61, 64, 67, 70
<223> M = A or C

<221> modified_base
<222> 2, 3, 5, 6, 8, 9, 11, 12, 14, 15, 17, 18, 20, 21, 23, 24,
26, 27, 29, 30, 32, 33, 35, 36, 38, 39, 41, 42, 44, 45,
47, 48, 50, 51, 53, 54, 56, 57, 59, 60, 62, 63, 65, 66,
68, 69, 71, 72
<223> N = G, A, T, or C

<221> misc_feature
<222> (1)...(72)
<223> This sequence may encompass 3 to about 24 repeats
      of the MNN motif

<400> 74
mnnmnnnmnnm nnmnnnmnnmn nmnnnmnnmnn mnnmnnnmnnm nnmnnnmnnmn nmnnnmnnmnn 60
mnnmnnnmnnm nn 72